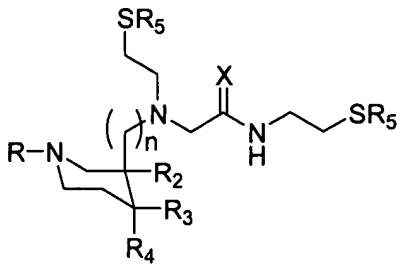
We Claim:

1. A compound represented by **A**:



A

wherein

X represents O or $(H)_2$;

R represents H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl;

R_2 represents H;

R_3 represents optionally substituted aryl or heteroaryl;

R_4 represents H;

R_5 represents independently for each occurrence H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl; and

n is 0, 1, or 2.

2. The compound of claim 1, wherein X represents O.

3. The compound of claim 1, wherein R represents alkyl.

4. The compound of claim 1, wherein R_3 represents optionally substituted phenyl.

5. The compound of claim 1, wherein R_5 represents H or aralkyl.

6. The compound of claim 1, wherein n is 1.

7. The compound of claim 1, wherein X represents O; and R represents alkyl.

8. The compound of claim 1, wherein X represents O; and R_3 represents optionally substituted phenyl.

9. The compound of claim 1, wherein X represents O; and R_5 represents independently for each occurrence H or aralkyl.

10. The compound of claim 1, wherein X represents O; and n is 1.

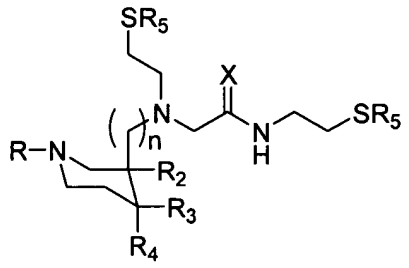
11. The compound of claim 1, wherein X represents O; R represents alkyl; and R_3 represents optionally substituted phenyl.

12. The compound of claim 1, wherein X represents O; R represents alkyl; and R_5 represents independently for each occurrence H or aralkyl.

13. The compound of claim 1, wherein X represents O; R represents alkyl; R_3 represents optionally substituted phenyl; and R_5 represents independently for each occurrence H or aralkyl.

14. The compound of claim 1, wherein X represents O; R represents methyl; R_3 represents 4-chlorophenyl; R_5 represents independently for each occurrence H or 4-methoxybenzyl; and n is 1.

15. A compound represented by **B**:



B

wherein

X represents O or $(H)_2$;

R represents H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl;

R_2 represents H;

R_3 represents H;

R_4 represents optionally substituted aryl or heteroaryl;

R_5 represents independently for each occurrence H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl; and

n is 0, 1, or 2.

16. The compound of claim 15, wherein X represents O.

17. The compound of claim 15, wherein R represents alkyl.

18. The compound of claim 15, wherein R_4 represents optionally substituted phenyl.

19. The compound of claim 15, wherein R_5 represents H or aralkyl.

20. The compound of claim 15, wherein n is 1.

21. The compound of claim 15, wherein X represents O; and R represents alkyl.

22. The compound of claim 15, wherein X represents O; and R_4 represents optionally substituted phenyl.

23. The compound of claim 15, wherein X represents O; and R_5 represents independently for each occurrence H or aralkyl.

24. The compound of claim 15, wherein X represents O; and n is 1.

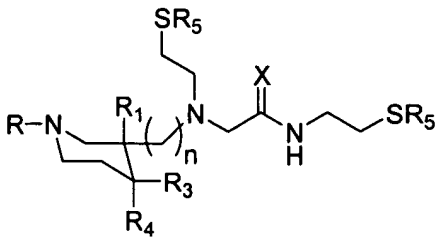
25. The compound of claim 15, wherein X represents O; R represents alkyl; and R_4 represents optionally substituted phenyl.

26. The compound of claim 15, wherein X represents O; R represents alkyl; and R_5 represents independently for each occurrence H or aralkyl.

27. The compound of claim 15, wherein X represents O; R represents alkyl; R_4 represents optionally substituted phenyl; and R_5 represents independently for each occurrence H or aralkyl.

28. The compound of claim 15, wherein X represents O; R represents methyl; R_4 represents 4-chlorophenyl; R_5 represents independently for each occurrence H or 4-methoxybenzyl; and n is 1.

29. A compound represented by **C**:



C

wherein

X represents O or $(H)_2$;

R represents H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl;

R_1 represents H;

R_3 represents optionally substituted aryl or heteroaryl;

R_4 represents H;

R_5 represents independently for each occurrence H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl; and

n is 0, 1, or 2.

30. The compound of claim 29, wherein X represents O.

31. The compound of claim 29, wherein R represents alkyl.

32. The compound of claim 29, wherein R_3 represents optionally substituted phenyl.

33. The compound of claim 29, wherein R_5 represents H or aralkyl.

34. The compound of claim 29, wherein n is 1.

35. The compound of claim 29, wherein X represents O; and R represents alkyl.

36. The compound of claim 29, wherein X represents O; and R_3 represents optionally substituted phenyl.

37. The compound of claim 29, wherein X represents O; and R_5 represents independently for each occurrence H or aralkyl.

38. The compound of claim 29, wherein X represents O; and n is 1.

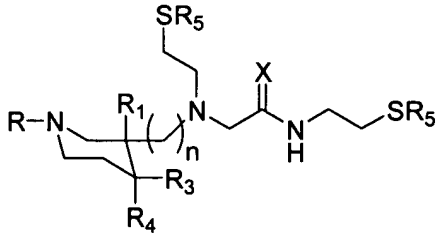
39. The compound of claim 29, wherein X represents O; R represents alkyl; and R_3 represents optionally substituted phenyl.

40. The compound of claim 29, wherein X represents O; R represents alkyl; and R_5 represents independently for each occurrence H or aralkyl.

41. The compound of claim 29, wherein X represents O; R represents alkyl; R_3 represents optionally substituted phenyl; and R_5 represents independently for each occurrence H or aralkyl.

42. The compound of claim 29, wherein X represents O; R represents methyl; R_3 represents 4-chlorophenyl; R_5 represents independently for each occurrence H or 4-methoxybenzyl; and n is 1.

43. A compound represented by **D**:



D

wherein

X represents O or $(H)_2$;

R represents H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl;

R_1 represents H;

R_3 represents H;

R_4 represents optionally substituted aryl or heteroaryl;

R_5 represents independently for each occurrence H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl; and

n is 0, 1, or 2.

44. The compound of claim 43, wherein X represents O.

45. The compound of claim 43, wherein R represents alkyl.

46. The compound of claim 43, wherein R_4 represents optionally substituted phenyl.

47. The compound of claim 43, wherein R_5 represents H or aralkyl.

48. The compound of claim 43, wherein n is 1.

49. The compound of claim 43, wherein X represents O; and R represents alkyl.

50. The compound of claim 43, wherein X represents O; and R_4 represents optionally substituted phenyl.

51. The compound of claim 43, wherein X represents O; and R_5 represents independently for each occurrence H or aralkyl.

52. The compound of claim 43, wherein X represents O; and n is 1.

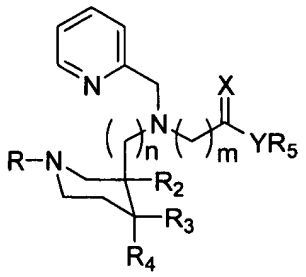
53. The compound of claim 43, wherein X represents O; R represents alkyl; and R_4 represents optionally substituted phenyl.

54. The compound of claim 43, wherein X represents O; R represents alkyl; and R_5 represents independently for each occurrence H or aralkyl.

55. The compound of claim 43, wherein X represents O; R represents alkyl; R_4 represents optionally substituted phenyl; and R_5 represents independently for each occurrence H or aralkyl.

56. The compound of claim 43, wherein X represents O; R represents methyl; R_4 represents 4-chlorophenyl; R_5 represents independently for each occurrence H or 4-methoxybenzyl; and n is 1.

57. A compound represented by **E**:



E

wherein

X represents O or S;

Y represents O or S;

R represents H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl;

R_2 represents H;

R_3 represents optionally substituted aryl or heteroaryl;

R_4 represents H;

R_5 represents H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl;

m is 1 or 2; and

n is 0, 1, or 2.

58. The compound of claim 57, wherein X represents O.

59. The compound of claim 57, wherein Y represents O.

60. The compound of claim 57, wherein R represents alkyl.

61. The compound of claim 57, wherein R_3 represents optionally substituted phenyl.

62. The compound of claim 57, wherein R_5 represents H, alkyl, or aralkyl.

63. The compound of claim 57, wherein m is 1.

64. The compound of claim 57, wherein n is 1.

65. The compound of claim 57, wherein X represents O; and Y represents O.

66. The compound of claim 57, wherein X represents O; and R represents alkyl.

67. The compound of claim 57, wherein X represents O; and R_3 represents optionally substituted phenyl.

68. The compound of claim 57, wherein X represents O; and R_5 represents H, alkyl, or aralkyl.

69. The compound of claim 57, wherein X represents O; and m is 1.

70. The compound of claim 57, wherein X represents O; and n is 1.

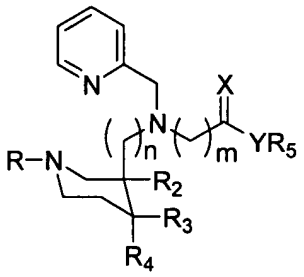
71. The compound of claim 57, wherein X represents O; Y represents O; R represents alkyl; and R_3 represents optionally substituted phenyl.

72. The compound of claim 57, wherein X represents O; Y represents O; R represents alkyl; and R_5 represents H, alkyl, or aralkyl.

73. The compound of claim 57, wherein X represents O; Y represents O; R represents alkyl; R_3 represents optionally substituted phenyl; and R_5 represents H, alkyl, or aralkyl.

74. The compound of claim 57, wherein X represents O; Y represents O; R represents methyl; R_3 represents 4-chlorophenyl; R_5 represents ethyl; m is 1; and n is 1.

75. A compound represented by **F**:



F

wherein

X represents O or S;

Y represents O or S;

R represents H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl;

R_2 represents H;

R_3 represents H;

R_4 represents optionally substituted aryl or heteroaryl;

R_5 represents H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl;

m is 1 or 2; and

n is 0, 1, or 2.

76. The compound of claim 75, wherein X represents O.

77. The compound of claim 75, wherein Y represents O.

78. The compound of claim 75, wherein R represents alkyl.

79. The compound of claim 75, wherein R_4 represents optionally substituted phenyl.

80. The compound of claim 75, wherein R_5 represents H, alkyl, or aralkyl.

81. The compound of claim 75, wherein m is 1.

82. The compound of claim 75, wherein n is 1.

83. The compound of claim 75, wherein X represents O; and Y represents O.

84. The compound of claim 75, wherein X represents O; and R represents alkyl.

85. The compound of claim 75, wherein X represents O; and R_4 represents optionally substituted phenyl.

86. The compound of claim 75, wherein X represents O; and R_5 represents H, alkyl, or aralkyl.

87. The compound of claim 75, wherein X represents O; and m is 1.

88. The compound of claim 75, wherein X represents O; and n is 1.

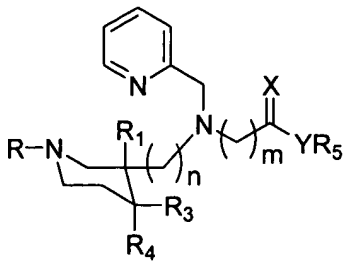
89. The compound of claim 75, wherein X represents O; Y represents O; R represents alkyl; and R_4 represents optionally substituted phenyl.

90. The compound of claim 75, wherein X represents O; Y represents O; R represents alkyl; and R_5 represents H, alkyl, or aralkyl.

91. The compound of claim 75, wherein X represents O; Y represents O; R represents alkyl; R_4 represents optionally substituted phenyl; and R_5 represents H, alkyl, or aralkyl.

92. The compound of claim 75, wherein X represents O; Y represents O; R represents methyl; R_4 represents 4-chlorophenyl; R_5 represents ethyl; m is 1; and n is 1.

93. A compound represented by **G**:



G

wherein

X represents O or S;

Y represents O or S;

R represents H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl;

R_1 represents H;

R_3 represents optionally substituted aryl or heteroaryl;

R_4 represents H;

R_5 represents H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl;

m is 1 or 2; and

n is 0, 1, or 2.

94. The compound of claim 93, wherein X represents O.

95. The compound of claim 93, wherein Y represents O.

96. The compound of claim 93, wherein R represents alkyl.

97. The compound of claim 93, wherein R_3 represents optionally substituted phenyl.

98. The compound of claim 93, wherein R_5 represents H, alkyl, or aralkyl.

99. The compound of claim 93, wherein m is 1.

100. The compound of claim 93, wherein n is 1.

101. The compound of claim 93, wherein X represents O; and Y represents O.

102. The compound of claim 93, wherein X represents O; and R represents alkyl.

103. The compound of claim 93, wherein X represents O; and R_3 represents optionally substituted phenyl.

104. The compound of claim 93, wherein X represents O; and R_5 represents H, alkyl, or aralkyl.

105. The compound of claim 93, wherein X represents O; and m is 1.

106. The compound of claim 93, wherein X represents O; and n is 1.

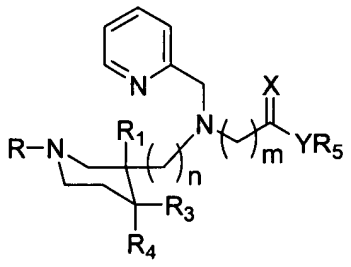
107. The compound of claim 93, wherein X represents O; Y represents O; R represents alkyl; and R_3 represents optionally substituted phenyl.

108. The compound of claim 93, wherein X represents O; Y represents O; R represents alkyl; and R_5 represents H, alkyl, or aralkyl.

109. The compound of claim 93, wherein X represents O; Y represents O; R represents alkyl; R_3 represents optionally substituted phenyl; and R_5 represents H, alkyl, or aralkyl.

110. The compound of claim 93, wherein X represents O; Y represents O; R represents methyl; R_3 represents 4-chlorophenyl; R_5 represents ethyl; m is 1; and n is 1.

111. A compound represented by **H**:



H

wherein

X represents O or S;

Y represents O or S;

R represents H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl;

R_1 represents H;

R_3 represents H;

R_4 represents optionally substituted aryl or heteroaryl;

R_5 represents H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl;

m is 1 or 2; and

n is 0, 1, or 2.

112. The compound of claim 111, wherein X represents O.

113. The compound of claim 111, wherein Y represents O.

114. The compound of claim 111, wherein R represents alkyl.

115. The compound of claim 111, wherein R_4 represents optionally substituted phenyl.

116. The compound of claim 111, wherein R_5 represents H, alkyl, or aralkyl.

117. The compound of claim 111, wherein m is 1.

118. The compound of claim 111, wherein n is 1.

119. The compound of claim 111, wherein X represents O; and Y represents O.

120. The compound of claim 111, wherein X represents O; and R represents alkyl.

121. The compound of claim 111, wherein X represents O; and R_4 represents optionally substituted phenyl.

122. The compound of claim 111, wherein X represents O; and R_5 represents H, alkyl, or aralkyl.

123. The compound of claim 111, wherein X represents O; and m is 1.

124. The compound of claim 111, wherein X represents O; and n is 1.

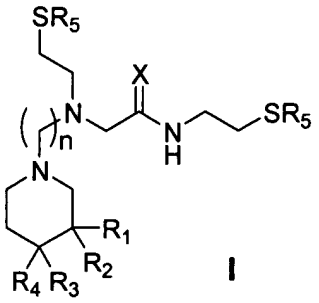
125. The compound of claim 111, wherein X represents O; Y represents O; R represents alkyl; and R_4 represents optionally substituted phenyl.

126. The compound of claim 111, wherein X represents O; Y represents O; R represents alkyl; and R_5 represents H, alkyl, or aralkyl.

127. The compound of claim 111, wherein X represents O; Y represents O; R represents alkyl; R_4 represents optionally substituted phenyl; and R_5 represents H, alkyl, or aralkyl.

128. The compound of claim 111, wherein X represents O; Y represents O; R represents methyl; R_4 represents 4-chlorophenyl; R_5 represents ethyl; m is 1; and n is 1.

129. A compound represented by **I**:



I

wherein

X represents O or $(H)_2$;

R represents H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl;

R_1 represents -C(O)OR;

R_2 represents H;

R_3 represents optionally substituted aryl or heteroaryl;

R_4 represents H;

R_5 represents independently for each occurrence H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl; and

n is 1, 2, 3, 4, or 5.

130. The compound of claim 129, wherein X represents O.

131. The compound of claim 129, wherein R represents alkyl.

132. The compound of claim 129, wherein R_3 represents optionally substituted phenyl.

133. The compound of claim 129, wherein R_5 represents H or aralkyl.

134. The compound of claim 129, wherein n is 3.

135. The compound of claim 129, wherein X represents O; and R represents alkyl.

136. The compound of claim 129, wherein X represents O; and R_3 represents optionally substituted phenyl.

137. The compound of claim 129, wherein X represents O; and R_5 represents independently for each occurrence H or aralkyl.

138. The compound of claim 129, wherein X represents O; and n is 3.

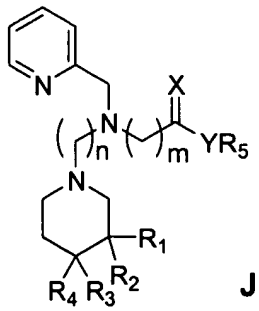
139. The compound of claim 129, wherein X represents O; R represents alkyl; and R_3 represents optionally substituted phenyl.

140. The compound of claim 129, wherein X represents O; R represents alkyl; and R_5 represents independently for each occurrence H or aralkyl.

141. The compound of claim 129, wherein X represents O; R represents alkyl; R_3 represents optionally substituted phenyl; and R_5 represents independently for each occurrence H or aralkyl.

142. The compound of claim 129, wherein X represents O; R represents methyl; R_3 represents 4-chlorophenyl; R_5 represents independently for each occurrence H or triphenylmethyl; and n is 3.

143. A compound represented by **J**:



J

wherein

X represents O or S;

Y represents O or S;

R represents H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl;

R_1 represents -C(O)OR;

R_2 represents H;

R_3 represents optionally substituted aryl or heteroaryl;

R_4 represents H;

R_5 represents H, alkyl, alkoxyl, alkylamino, aryl, heteroaryl, aralkyl, heteroaralkyl, acyl, alkoxycarbonyl, or alkylaminocarbonyl;

m is 1 or 2; and

n is 0, 1, or 2.

144. The compound of claim 143, wherein X represents O.

145. The compound of claim 143, wherein Y represents O.

146. The compound of claim 143, wherein R represents alkyl.

147. The compound of claim 143, wherein R_3 represents optionally substituted phenyl.

148. The compound of claim 143, wherein R_5 represents H, alkyl, or aralkyl.

149. The compound of claim 143, wherein m is 1.

150. The compound of claim 143, wherein X represents O; and Y represents O.

151. The compound of claim 143, wherein X represents O; and R represents alkyl.

152. The compound of claim 143, wherein X represents O; and R_3 represents optionally substituted phenyl.

153. The compound of claim 143, wherein X represents O; and R_5 represents H, alkyl, or aralkyl.

154. The compound of claim 143, wherein X represents O; and m is 1.

155. The compound of claim 143, wherein X represents O; Y represents O; R represents alkyl; and R_3 represents optionally substituted phenyl.

156. The compound of claim 143, wherein X represents O; Y represents O; R represents alkyl; and R_5 represents H, alkyl, or aralkyl.

157. The compound of claim 143, wherein X represents O; Y represents O; R represents alkyl; R_3 represents optionally substituted phenyl; and R_5 represents H, alkyl, or aralkyl.

158. The compound of claim 143, wherein X represents O; Y represents O; R represents methyl; R_3 represents 4-chlorophenyl; R_5 represents ethyl; and m is 1.

159. A complex, comprising a radionuclide; and a compound of claim 1, 15, 29, 43, 57, 75, 93, 111, 129, or 143.

160. The complex of claim 159, wherein the radionuclide is technetium.

161. A method of imaging brain tissue of a mammal, comprising the step of administering to a mammal a sufficient amount of a complex of claim 159.

162. The method of claim 161, wherein the radionuclide is technetium.

163. A method of imaging dopamine transporters in brain tissue of a mammal, comprising the step of administering to a mammal a sufficient amount of a complex of claim 159.

164. The method of claim 163, wherein the radionuclide is technetium.